

SL-1 MC-123/1

Time: 08:00 a.m. CDT, 08:19:30 GMT

3/23/73

PAO

Good morning. This is Skylab Control at 1300 hours Greenwich mean time, 8 a.m. central daylight time, May 23rd. The unmanned Skylab space station is presently in touch with the Madrid tracking site, traveling across Europe on the 128th revolution. Since our last reporting period, there appear to be no major changes in the Skylab space station, and the major activity or the central activity still continues to be thermal management. Average temperature measurements in the interior of the orbital workshop are approximately 123.5 to .9 degrees, a slight elevation in the patient during the last 24 hours. These temperatures have been computed from numerous sensors located on the OWS structure and, as I said, are an average. On the other side of the coin, temperatures in the area of the wall food locker have decreased approximately 1 degree. Skylab space station is flying, at this time, in the following attitude: wings level, in plane, and pitched up 47 degrees. The airlock module suit umbilical system, which had been giving us some attention over the past two or three days, is running approximately 35 degrees, 34.9, or slightly 7 to 8/10 of a degree above what we reported yesterday. This brings smiles to the faces of the flight controllers. At 13 hours 2 minutes 58 seconds Greenwich mean time, this is Skylab Control.

END OF TAPE

SL-I NC-124/1

Time: 08:30 a.m. CDT, 08:20:00 GET

9/23/73

PAO

This is Skylab Control at 13 hours 30 minutes Greenwich mean time, with an announcement that there will be a change-of-shift briefing at the Johnson Space Center News Center briefing room. That briefing is scheduled to begin at 9:30 a.m. central daylight time; 10:30 a.m. eastern daylight time. Participating will be Neil B. Hutchinson, the off-going flight director, and George B. Hardy, who is head of the Engineering, Development, and Integration Office, Skylab Program Office, out of the Marshall Space Flight Center. We'll have the capability of taking questions from the Kennedy Space Center. At 13 hours 31 minutes Greenwich mean time, this is Skylab Control.

END OF TAPE

SL-1 MC-119/1

Time: 09:00 a.m. CDT, 8:20:30 GMT

5/23/73

PAO This is Skylab Control at 1400 hours GMT, with an advisory that we will have a change-of-shift briefing at 9:30 a.m. central daylight time with Neil B. Hutchinson, the offgoing flight director and George B. Hardy, who is head of the Engineering Development and Integration Office from the Marshall Space Flight Center, participating. We have also added a third participant, who is Don Arabian, Chief of the Test Division at JSC. And Mr. Arabian will be on hand to discuss the so-called parasol thermal shield, that device that is under construction at the Johnson Space Center. At 14 hours 1 minute, this is Skylab Control.

END OF TAPE

MC-126/1

Time: 09:25 a.m. CDT. 08:20:55 GMT

5/23/73

PAO May we have your attention please. This is Kennedy Space Center, Skylab News Center. The countdown for the launch of Skylab 2 scheduled for 9 a.m. eastern daylight time on Friday began on schedule at 5:30 a.m. eastern daylight time today. After installation of flight batteries in the Saturn-IB second stage and instrument unit, batteries will be powered up and a series of tests of flight control radio frequency and telemetry systems will be initiated. Loading of liquid hydrogen and liquid oxygen in the command service module is scheduled for later today. The National Weather Service Spaceflight Meteorology Group said this morning that satisfactory weather is expected for the launch of Skylab 2 on Friday morning although there is a strong likelihood of afternoon and evening thundershowers on Thursday. Countdown activity should not be greatly affected and such thunderstorms would dissipate during the night. On Friday morning scattered clouds are expected in the launch area with visibility of about 8 miles, southwest winds 10 miles per hour and temperature about 78 degrees. Near normal conditions are expected over the usually cloudy North Atlantic which should be of no particular concern to the launch. Skylab 2 crewmembers Charles Conrad, Joseph Kerwin and Paul Weitz arrived at Kennedy Space Center late yesterday. This morning they are undergoing their F minus 2 medical examinations and this afternoon they are scheduled for a bench review of items to be stowed in the command module and the stowage briefing. The tools to be used by the crew in work on the solar array and the twin pole solar shield that would be deployed from the command module by Joseph Kerwin during a standup EVA are scheduled to arrive at Kennedy Space Center about 12:30 p.m. eastern daylight time today. The tools were developed by the Johnson Space Center and the Marshall Space Flight Center and the twin pole solar shield by the Marshall Space Flight Center. The parasol solar shield - that will be deployed by Paul Weitz from the workshop scientific airlock - is scheduled to arrive at Kennedy Space Center later today. The parasol was developed by Johnson Space Center. That concludes our report.

END OF TAPE

SL-1 NC-127/1

Time: 10:52 a.m. CDT, 8:22:22 CRT

5/23/73

PAO This is the Skylab News Center at KSC. The Skylab 2 crew today completed the 0 minus 2-day physical exams, and NASA doctors reported all is well with Commander Charles "Pete" Conrad, Science Pilot Joseph Kerwin, and Pilot Paul Weitz. Dr. Royce Hawkins, the Deputy Director for Medical Operations at Johnson Space Center, said, following the crew's 2-hour physical, that and I quote, "There are no problems, everything is normal, and all data and medical examinations look good." "They are in high spirits." The crew is scheduled to take part in a review of command module stowage items later today in the bonded stowage area of the manned spacecraft operations building at Kennedy Space Center. That completes our report.

END OF TAPE

SL-1 MC-128/1

Time: 1600 m.m. CDT, 8:22:30, GMT

5/23/73

PAO This is Skylab Control at 1600 hours GMT.
During the end of the 129th revolution, the orbital parameters
of the unmanned space station are 238.9 nautical miles at
the high point times by 234.4 nautical miles at the low
point. Space station is traveling at 25,121 feet per second
over the central USA, at this time. At 16 hours, 1 minute
GMT, this is Skylab Control.

END OF TAPE

SL-1 MC-129/1

Time: 1:00 p.m. CDT, 09:00:00 GMT

3/23/73

PAO This is Skylab Control at 1800 hours
Greenwich mean time. Skylab space station is on the 131st
revolution over the continent of Africa at this time. The
key issue as far as the flight controllers are concerned
at Johnson Space Center still remains thermal management on
the Skylab 1. At 18 hours 1 minute Gmt this is Skylab
Control.

END OF TAPE

SL-1 MC-130/1

Time: 02:00 p.m. CDT, 9:01:30 GMT

5/23/73

PAO This is Skylab Control at 19 hours and 2 seconds Greenwich mean time. At the present time the Skylab workshop is on its 131st revolution in range of the Hawaiian Tracking Station, just north of Hawaii, traveling on an ascending node over the north Pacific. At this time, the temperature in the suit umbilical system coolant loops is 34.7 degrees, which is exactly on the mark set a day and half ago by flight controllers for maintaining temperature above the freezing point of water. This 34.7 does give them about a 3-degree temperature advantage over that freezing point. At this time, TACS gas consumables remain at 71.4 percent, well above experiment redline and well within the range of flight predictions; 71.4 percent of thruster attitude control system gas remains. Gas pressure indicators in the orbital workshop indicate that there is, at the present time, about 1.2 pounds per square inch of pure nitrogen. There is no oxygen during this purging cycle that the crew has been going through. Of twenty-five atmospheric-gas temperature sensors in the Skylab space station, 12 continue to read off-scale high, with temperatures ranging from 63 degrees in the multiple docking adapter to 119.5 degrees on the ceiling of the experimental compartment. Twelve of those sensors, as I pointed out, are reading off-scale high, that is, in excess of 120 degrees Fahrenheit. This is Skylab Control at 19 hours 1 minute and 43 seconds Greenwich mean time.

END OF TAPE

SL-1 MC-131/1

Time: 3:00 p.m. CDT, 09:02:30 GET

3/23/73

PAO This is Skylab Control at 20 hours and 2 seconds Greenwich mean time. At this time, Flight Director Milton Windler has asked for a thermal evaluation of a proposed pitchup maneuver to 50 degrees, so that careful control can be maintained over low temperatures in the suit umbilical system coolant loop. This loop, which is still reading approximately 34.7 degrees Fahrenheit, feeds the opening to the water line in the suit umbilical system and consists of aluminum tubing, containing water. At the same time, temperatures have risen slightly in film and food storage areas in the orbital workshop. Food temperatures are now estimated at approximately 128 degrees, with film temperatures at about 126 degrees. These figures are estimated by using on-scale temperature transducers in the orbital workshop, and these are extrapolations. No sensors are able to read above 120 degrees in the workshop area. At the present time, they are considering doing some sort of an orbital attitude change, probably within the next 15 minutes, shortly after we get acquisition of signal at Australian tracking stations. At the present time, the Skylab is at the bottom of the descending node on revolution 132. It's in the Indian Ocean, about to begin its ascension to the northeast, and it is into the night-side of the earth, 13 minutes and 30 seconds remaining before it comes into daylight again. This is Skylab Control, Houston, at 20 hours 1 minute and 44 seconds.

END OF TAPE

SL-1 NC-132/1

Time: 16:10 CDT, 9:03:40 GET
5/23/73

PAD This is Skylab Control at 21 hours 10 minutes and 2 seconds Greenwich mean time. At the present time the spacecraft is on its 133rd revolution above the Earth on the descending node, passing off the tip of Australia, just about to be acquired by the Ascension tracking station. On revolution 133, its period of orbit is 1 - period of revolution is 1 hour 35 minutes 22.7 seconds. It has a maximum elevation of 239.6 nautical miles - a minimum elevation of 234.6 nautical miles. Its velocity at the present time is 25,089.8 feet per second or approximately 17,100 miles per hour. Flight Director Milton Windler has scheduled a major attitude change in an attempt to bring temperatures in the space station habitation area to lower levels. At the present time a pitchup of an additional 18 degrees from 47 degrees, the present attitude, to a new attitude of 65 degrees pitched up into the Sun, is planned to begin just before sunrise on revolution number 133, the revolution we are presently in. This will be commanded from the Australian tracking station at Carnarvon at about 21 hours 43 minutes Greenwich mean time or 4:43 p.m. central daylight time. Sunrise in this revolution occurs at 21 hours 48 minutes 25 seconds Greenwich mean time or 4:48 central daylight time. In addition to cooling off the orbital workshop area where film storage has reached an estimated 126 degrees Fahrenheit and food storage areas are at 128 degrees Fahrenheit, this maneuver may help to bring up temperatures in the suit umbilical system coolant loop. Temperature in the coolant loop is presently reading 34.7 degrees Fahrenheit slightly under 3 degrees above the freezing point. A similar maneuver performed at an 80 degree pitchup during orbit 112 had been preceded by a revolution at solar inertial attitude, and no well-based thermal data was provided from that period of time. The waroon team of flight controllers, including the Electrical General Instrumentation and Life Support Systems Engineer, the EGIL, EGIL, the Guidance and Navigation Systems Control Engineer, the ATM Digital Computer Software Control Officer and the Flight Director, all of whom are directly concerned with this attitude maneuver, are remaining on duty during this maneuver. Charles Lewis' team of flight controllers have however taken their positions following an official change of shift. The new 65 degree pitchup attitude will be held for two revolutions in the present plan, then the space station will be maneuvered to a 45 degree pitchup for five revolutions to recharge the 18 batteries attached to the Apollo Telescope Mount solar array system. Following this five revolution recharge the Skylab will be returned to a 50 degree pitch up provided thermal characteristics are within desired limits. A Change-of-shift briefing with Flight Director Milton Windler and one other participant is expected to begin following this attitude maneuver. At this time we're estimating about 5:15 p.m. central daylight time for the Change-of-shift briefing. This is Skylab Mission Control Houston at 21 hours 13 minutes and 52 seconds Greenwich mean time.

END OF TAPE

SL-1 MC133/1

Time: 16:16 CDT 09:03:45 GRT

5/23/73

PAO

The countdown for the launch of Skylab 2 at 9:00 a.m. eastern daylight time on Friday began this morning at 5:30 a.m. and is proceeding on schedule. Flight batteries were installed in the booster, second stage, and instrument unit of the Saturn 1-B. And the launch vehicle at Complex 39, Pad B, was powered up for a series of flight control radio frequency and telemetry systems tests. Loading of liquid oxygen and liquid hydrogen for the spacecraft fuel cells is now in progress and should be completed late this evening. Spacecraft stowage of flight equipment is to get underway early Thursday morning. This equipment includes tools to be used by the crew, if deployment of the orbital workshop solar arrays appears feasible, and the solar shield devices designed to lower the workshop's temperature. Completion of these tasks should be accomplished during the late morning hours. Stowage of flight items and mechanical buildup of the spacecraft is to begin shortly after 1:00 a.m. Thursday. Weather conditions on Friday continue to appear favorable for a launch at 9:00 a.m. There's a probability of afternoon and evening thundershowers on Thursday, but countdown activities should not be greatly affected. The showers are expected to dissipate during the night. On Friday morning, scattered clouds are expected in the launch area with visibility about 8 miles, southwest winds at 10 miles per hour, and a temperature of approximately 78 degrees. That completes our report.

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SL-1 NC-134/1

Time: 16:47 CDT 09:04:17 CET

5/23/73

PAO This is Skylab Control at 21 hours 47 minutes and 3 seconds Greenwich mean time. The maneuver discussed earlier, a two-axis maneuver including a pitchup to 65 degrees, was begun at 46 minutes and 40 seconds after the hour. This two-axis maneuver also includes a slight 3 degree counterclockwise roll to correct for drift. So, they are now in the process of commanding a pitchup to 65 degrees. They expect this to take approximately 12 minutes. At this time the spacecraft is about 50 seconds from reaching the sunrise point in its orbit. It's within range of the Carnarvon tracking station, and on an ascending node of the 133rd revolution. This is Skylab Mission Control, Houston at 21 hours 47 minutes 50 seconds, Greenwich mean time.

END OF TAPE

SL-1 MC-135/1

Time: 17:11 CDT, 9:04:33 GET

5/23/73

PAO This is Skylab Control at 22 hours 5 minutes 3 seconds Greenwich mean time. Flight Director Milton Windler has left the control center. Tracking data received at Guam indicated that the attitude maneuver had been successfully accomplished and he left - he is picking up George Hardy of Marshall Space Flight Center - they should be available in the news center at building 1 at Johnson Space Center within the next 2 or 3 minutes. That means that that press conference may be beginning about 5 minutes early. This is Skylab Mission Control Houston at 5 minutes and 33 seconds after the hour.

END OF TAPE

SL-1 MC-136/1

Time: 18:00 CDT, 09:05:30 GET

5/23/73

PAO This is Skylab Control at 23 hours 1 second Greenwich mean time. The present time cabin pressure is about 0.9 pounds per square inch of nitrogen, as we depressurize for the third time to a 0.6 pounds per square inch level. Following this final cycle of nitrogen - following this a final cycle of nitrogen repressurization and depressurization to approximately 0.1 or 0.2 pounds per square inch level will be performed. At that time we will repressurize with oxygen and nitrogen and prepare for the crew. Thruster attitude control gas remaining is 71.2 percent of the total supply ... when we first launched. This is 0.8 percent below the desired Flight Plan level, but it provides a surplus of 29.6 percent above the amount necessary for all operations and experiments over an 8-month period. Of the 25 atmospheric gas temperature transducers in the space station, 12 continue to read off-scale high, or above 120 degrees Fahrenheit. Remaining temperatures vary from 60.8 degrees Fahrenheit in the Multiple Docking Adapter to 119.5 degrees Fahrenheit on the ceiling of the experimental compartment in the Orbital workshop. Some reduction in habitation temperatures is expected to begin during the night. At the present time the suit coolant loop inlet temperature is remaining stable at 34.7 degrees Fahrenheit. This is as of the last tracking station, Merritt Island, Florida. At this time we are out of range of tracking stations for approximately 1 hour, as the spacecraft is nearing the end of its descending point in the 134th revolution. It is 23 hours 1 minute and 58 seconds Greenwich mean time. This is Skylab Control.

END OF TAPE

SL-1 MC-137/1

Time: 19:05 CDT, 9:06:35 GMT

5/23/73

PAO

This is Skylab Control at 0 hours 5 minutes and 3 seconds Greenwich mean time. At the present time, temperatures are coming down in the Skylab workshop area. The Skylab is in a daylight pass now. Data, for the first time in a little over an hour and a half, as we are receiving data from Goldstone tracking station, and the Goldstone data indicates that temperatures have dropped from 1/2 to 1 degree. The temperature now in the multiple docking adapter is indicating 59.8 at one transducer. This compares to a 60.8 temperature an hour - a little over an hour ago. And temperature at the highest point on-scale is: the experimental compartment ceiling has come down from 119.5 to 119.0. So, these are the first indications we're getting that temperatures are starting to come down. There is a considerable temperature lag so that we may have continued reductions in temperature along this line during the rest of the night. This is the second daylight pass at the 65 degree pitched up attitude. At this pass, when it's completed, we will return to an attitude of approximately 45 to 48 degrees pitched up where we can recharge our batteries that are - the batteries that are attached to the Apollo Telescope mount solar array system. We have had no change in temperature on the suit umbilical system coolant loop. The temperature there remains 34.7, so far. This may go up in temperature in the next few hours and we are looking for some slight increase in temperature there to prevent any possibility of freezing. The nitrogen purge cycle continues. We're reduced now to approximately 0.8 pounds per square inch of nitrogen. This is down from 0.9 of the previous report and that purge cycle is expected to run to 0.6 pounds per square inch, at which time we will repressurize 2 pounds per square inch of nitrogen and then again begin another purge cycle down nearly to 0.1 or 0.2 pounds per square inch. That's nearly an empty space vehicle, and then we will repressurize with nitrogen and oxygen. All other systems seem to be operating properly. We are now preparing to do another attitude maneuver following this daylight pass. We have 13 minutes and 17 seconds of daylight left on this pass. This is Skylab Control. We will have a further report when we have some sort of a status report from Marshall. This is Skylab Control at 7 minutes and 32 seconds after the hour.

END OF TAPE

SL-1 MC-138/1

Time: 20:00 CDT, 9:07:30 CET

5/23/73

PAO This is Skylab Control at 1 hour and 2 seconds G.m.t. At the present time the spacecraft is beginning an ascending node of the 135th revolution, passing in the daylight over the Indian Ocean. At this time it has a period of 1 hour 33 minutes 22.3 seconds for - revolution above the Earth. High point in its altitude, 239.5 nautical miles, low point, 234.3 nautical miles. At this time its velocity is 25,122.6 feet per second - that's approximately 17,100 miles per hour. There has been no tracking data for some time now. We've been out of range of station since leaving Vanguard sometime ago. There will not be an acquisition of signal again for another 39 minutes, at which time we'll receive data from Goldstone tracking station in California. At 12 minutes and 11 seconds after 0 hour of Greenwich mean time or at 7:12:11 p.m. central daylight time - that's 12 minutes and 11 seconds after 7 p.m. daylight - central daylight time. Repressurization of the cabin was begun using nitrogen. That was an end of the depressed cycle and we are now in a repress cycle again. We'll repressurize to 2 pounds per square inch and then once again be pressurized to about 0.1 or 0.2 pounds per square inch before the final pressurization using both oxygen and nitrogen. There have been no difficulties here. We have not had very much data because of the lack of tracking stations over the past 2 hours, but temperatures did at that time indicate they were coming down. We're still awaiting a release from Marshall - final day's status report and we'll stay on the air for that sometime later this evening. This is Skylab Control at 1 minute and 60 seconds after the hour.

END OF TAPE

SL-1 MC-139/1

Time: 21:00 CDT, 9:08:30 GMT

5/23/73

PAO This is Skylab Control at 2 hours Greenwich mean time. At the present time, the spacecraft continues at a new attitude after being corrected during this last pass. It's about to have acquisition of signal at the Vanguard tracking station aboard a ship in the Atlantic Ocean. We are, at the present time, in our nighttime part of our pass just having entered that as we're just about to begin the 136th revolution. At the present time, we have a high point in our altitude of 239.2 nautical miles, a low point of 234.7 nautical miles. Velocity continues relatively the same, 25,085.2 feet per second. Approximately 17,100 miles per hour. Temperature scale at Goldstone, which was our last tracking station, indicated that food temperatures have now come down approximately 2 degrees. We're reading food temperatures now based on two thermal scales using the determination of food temperatures of approximately 125.7 to 126.5. Earlier, we had estimates of approximately 128 degrees for food temperatures. Film temperatures have also come down approximately a degree and one half. We now have a reading of 124.6 for food temperatures. These temperatures are, of course, estimates based on the off-scale temperature readings we have available from the workshop. At this time, we're still waiting for an update of report of today's activities and upcoming events from Marshall Space Flight Center. We're appraised that that has now come to Johnson Space Center and we're waiting for it here at Mission Control, and as soon as that comes in, we'll read it. That should be within a very short period of time. This is Skylab Control at 1 minute and 52 seconds after the hour.

END OF TAPE

SL-1 KC-140/1

Time: 21:15 CDT, 9:08:45 GMT

5/23/73

PAO: This is Skylab Control at 2 hours and 15 minutes Greenwich mean time. This is a status report from Marshall Space Flight Center. A design certification review was held today at Marshall Space Flight Center to review in detail the status of the Skylab workshop. This review also included a review of the readiness of various thermal shields, the operational plans for the revised Skylab mission, and crew readiness for launch of SL-2. In addition to the Senior Skylab Management from NASA headquarters, Marshall Space Flight Center, Johnson Space Center, and Kennedy Space Center, the review was attended by the Deputy Administrator of NASA, Dr. George Low, the Associate Administrator for Manned Spaceflight, Dale Myers, the directors of the three manned flight centers, Dr. Rocco Petrone, Dr. Christopher C. Craft, and Dr. Kurt Davis, and the Chairman of the Aerospace Safety Advisory Panel, General Harold Dunn. Representatives also from McDonnell Douglas Corporation, Martin Marietta Denver, and Rockwell International Corporation participated. This discussions covered the status of the in-orbit Skylab 1 and an assessment of the conditions the crew will encounter. Limited data is available for determining the detailed condition of the outside of the workshop. But the thermal sensors and the telemetry indicators leave little doubt that the thermal shield is almost completely gone except for perhaps minor debris, rods, and wire. As far as the solar panel booms are concerned - the condition which seems most consistent with our sensors and the telemetry data is that boom number 2 is no longer attached to the workshop and that boom number 1 is deployed only about 5 to 10 degrees, at which position it appears to be restrained. Several of the more promising schemes for deploying a thermal shield by the Skylab 2 crew were reviewed in detail. The design, testing, and qualities of each shield were covered as well as the assessment of the crew's ability to get them in place. Those examined were the SEVA sail, the twin-pole thermal shield, the parasol, and two types of inflatable shields. The thermal electrical conditions which were a result from using each of these devices was also discussed. Each effectively protects the Skylab from solar heat. Further reviews covered the mission changes to the rendezvous, docking, and initial entry into Skylab, as well as the crew preparation for these critical events. After hearing all of the detailed technical discussions, it was concluded that while all of the thermal shields could be deployed safely, and each would do the job intended, space limitations in the command module forced a selection of three devices. The primary mode of deploying the thermal shield will be the Skylab parasol from a position internal to the workshop. In the event this cannot be accomplished, the crew will fix the twin-pole thermal shield to the spacecraft

SL-1 MC-140/2

Time: 21:13 CDT, 9:08:45 GET

5/23/73

during extravehicular activity from the vicinity of the Apollo telescope mount. In addition, space has been found in the command module for the standup EVA sail, which will be carried as a third alternative. Some effort will continue on one of the inflatable shields which is interchangeable with the Skylab parasol, in the event some unforeseen problem delays the parasol significantly. These options were judged to provide maximum crew safety and the highest probability of success based on crew training, systems testing, and design analysis. William C. Schneider, NASA Director of the Skylab program, said, "It was a difficult choice since all designs were good and so much excellent work had been done."

It was also decided that a limited attempt may be made by the crew to deploy the presumably partially deployed solar array after a real-time assessment and analysis has been made by the astronauts and NASA ground personnel. The review confirmed the launch date of May 25, 1973, at 9 a.m. eastern daylight time, although much work still remains to be accomplished. Confidence was expressed in the deployment of the shield and the subsequent 28-day Skylab mission. Also, it is expected that there is a relatively low probability that the solar array system booms will be in a condition such that they can be deployed by the flight crews. In the event the crew cannot deploy the booms, photographs will be taken to see if a technique for deployment can be devised for subsequent crew visits. This is Skylab Control at 2 hours 19 minutes and 50 seconds Greenwich mean time.

END OF TAPE